
Lesson Overview

Two major efforts in rescue operations involve moving debris and moving victims.

To achieve the goals of CERT rescue operations, rescuers need to create a safe environment by:

- Following standard safety precautions.
- Using proper techniques for moving debris and victims.

Working Within Your Limits

Many volunteers have been injured or killed because they did not pay attention to their own physical limitations and level of mental fatigue.

During lengthy search and rescue operations, it is important to take breaks to:

- Eat.
- Drink fluids.
- Rest and relax.

Taking care of yourself in this way enables you to return to the rescue effort with a clearer mind and improved energy.

Using Personal Protective Equipment

Always use the proper safety equipment for the situation, including:

- Gloves.
- Goggles.
- Dust mask.
- Helmet.
- Work boots.

Following Safety Procedures

During rescue operations, follow established procedures at all times. Basic safety procedures include the following:

- Work in pairs—never alone!
- Never enter a building with heavy damage because it is considered an unstable structure. Mark the building to indicate that it is unsafe to enter, and leave immediately.
- Don't try to lift or carry more than is reasonable.
- Use proper lifting techniques.
- Carry the load close to the body.

Leveraging

Leveraging involves using a lever and fulcrum to move a heavy object.

- **Step 1.** Place a stationary object under the lever to act as a fulcrum.
 - **Step 2.** Using the fulcrum, wedge a lever under the object that needs to be moved.
 - **Step 3.** Force the end of the lever (arrow) down on the fulcrum. This action will lift the wedge end under the object raising it.
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Leveraging Safety

When leveraging, it is important to remember to:

- Never put your hands and feet under the object that you are lifting.
 - Use the principle of **lift an inch, crib an inch**. Raise the object slowly and stabilize it with cribbing material as you go.
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Cribbing

A crib is a strong wooden framework that is built under the object that you are lifting to support its weight.

Box cribbing means arranging pairs of wood pieces alternately to form a stable rectangle.

Leveraging and Cribbing

Leveraging and cribbing are used together. The team alternately lifts the object and places cribbing materials under the lifted edge to stabilize it.

Leveraging and cribbing should be gradual, both for stability and to make the job easier.

The rule of thumb is: **Lift an inch, crib an inch**.

Leveraging/Cribbing Removal

Leveraging, cribbing, and victim removal takes at least five CERT members. Positioning for each member is:

- **Group Leader:** In front of collapse, positioned so that he or she can view the entire operation while remaining out of the rescuers' way. The group leader's function is to ensure that the rescue takes place safely.
 - **Lever Person:** At the front edge of the collapsed wall and positioned so that he or she can position a fulcrum and lever under the wall.
 - **Crib Persons:** On either side of the collapsed wall and positioned to enable the placement of cribbing as the wall is raised with the lever.
 - **Medical Care/Victim Removal Person:** Next to the crib person who is closest to the victim's head.
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More About Leveraging and Cribbing

It may be necessary to leverage and crib at more than one place (but **never** from opposite ends at the same time, as that could create an unstable condition) to ensure stability. This is a labor-intensive and time-consuming process, however. That is why CERTs should remove lightly trapped people first.

After Leveraging and Cribbing

When sufficient lift has been achieved, remove the victim from beneath the object.

Never leave an unsafe condition! After the rescue, slowly lower the raised object by reversing the leveraging and cribbing process. Lever the object and remove one layer of cribbing material until the object is down.

Debris Removal

When debris must be removed to locate victims, the CERT team should set up a human chain and pass the debris from one person to the next.

Be sure to set up the chain in a position that will not interfere with rescue operations.

And don't forget to wear leather work gloves to protect your hands!

Removing Victims

Rescued victims can be extricated using various techniques, including:

- Self-removal or assist.
 - One-person carries.
 - Two-person carries.
 - Group carries.
 - Dragging.
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Selecting the Removal Method

The removal method used will depend on several factors, including:

- **General stability of the immediate environment:** In a structure with light damage, injured victims should be treated on-site by the medical team. In a moderately damaged building, the victim should be removed as quickly as possible using a method that is safe for the rescuers and the victim, given the amount of debris and available space.
- **Number of rescuers available:** One-person removals include the one-person arm carry, one-person pack-strap carry, and various drag techniques. Two-person removals include the two-person carry and the chair-carry. More rescuers are needed for the blanket carry or to use a backboard.
- **Strength and ability of the rescuers:** You should not attempt to lift more than is reasonable for your size and strength. The one-person arm carry is reserved for a small victim carried by a physically able rescuer. The distance to be covered should also be considered. Your safety is the number one priority, so opt out of any carry that you are not physically able to do.
- **Condition of the victim:** Physically able victims can assist in their own removal. If safety and time permits, a victim with a suspected closed-head or spinal injury should not be lifted or dragged. If removal is necessary, every precaution should be taken to keep the spine in a straight line using a backboard before removal.

When moving victims, rescuers must use teamwork and communication among everyone involved in the lift. This is important for rescuer and victim safety.

Self-Removal or Assist

It is usually best to allow ambulatory victims to extricate themselves.

However, ambulatory victims sometimes are weaker and more injured than they think. When victims become free from entrapment, they may need assistance to exit the structure.

One-Person Carry

The one-person carry should be used **only if the victim is small** and you are physically able to carry the person over the required distance.

To perform a one-person carry:

1. Reach around the victim's back and under the knees.
2. Lift the victim by lifting with the legs while keeping your back straight.

Pack-Strap Carry

Another way for a single rescuer to lift a victim safely is to perform a one-person pack-strap carry. To perform this carry:

1. Stand with your back to the victim.
2. Place the victim's arms over your shoulders and grab the hands in front of your chest.
3. Hoist the victim by bending forward slightly, until the victim's feet just clear the floor.

Two-Person Carry

Victim removal is easier when multiple rescuers are available.

With the two-person carry, the person lifting the feet can face either toward or away from the victim.

Performing a Two-Person Carry

1. Rescuer 1 squats at the victim's head, reaches under the victim's arms from behind, and grasps the victim's forearms across the midsection.
 2. Rescuer 2 squats between the victim's knees, facing either toward or away from the victim, and grasps the outside of the victim's legs at the knees.
 3. Both rescuers rise to a standing position, keeping backs straight and lifting with the legs, and walk the victim to safety.
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Chair Carry

If a sturdy chair is available, two rescuers can seat the victim on a chair and use the chair for removal.

Performing a Chair Carry

1. Rescuer 1 faces the back of the chair and grasps the back uprights.
 2. Rescuer 2 squats, facing away from the victim. The rescuer reaches back and grasps the two front legs of the chair.
 3. Both rescuers tilt the chair back, lift, and walk out.
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Blanket Carry

A variety of materials, such as blankets, can be used as improvised stretchers. The blanket carry can be used to remove victims who cannot be removed by other means.

Six rescuers are recommended for this carry to ensure the victim's stability during the move. One rescuer must be designated the lead person to ensure teamwork when performing the lift.

Removal by Dragging

If there is no other way to remove a victim from a confined area, the victim can be dragged.

This method should only be used when the victim's removal is time-critical and no other method is available. Do not drag a victim when debris may cause additional injury.

Drag techniques include the:

- Blanket drag.
 - Shoulders drag.
 - Feet drag.
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Blanket Drag

To perform a blanket drag:

1. Wrap the victim in a blanket.
 2. Squat at the victim's head and grasp the blanket behind the victim's head.
 3. Drag the victim clear of the hazard.
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Removal by Dragging (Continued)

Shoulders Drag

To perform a shoulders drag:

1. Grasp the victim by the shoulders.
 2. Drag the victim clear of the hazard.
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Feet Drag

This same drag can be used with the feet. It should only be used if victim location does not permit other methods to be used. The rescuer needs to be cautious not to bump the victim's head during the drag.

Lesson Summary

The goals of rescue operations are to maintain rescuer safety, triage victims, and evacuate victims as quickly as possible while minimizing additional injury.

Rescuers can create a safe environment by:

- Working within their limits.
 - Using personal protective equipment.
 - Following safety procedures.
 - Using leveraging and cribbing to move and stabilize debris.
 - Using safe methods to remove victims.
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